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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/654,183	09/03/2003	Fumio Akikuni	10830-058002	5166

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EXAMINER

YUN, JURIE

ART UNIT PAPER NUMBER

2882

DATE MAILED: 04/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/654,183

Applicant(s)

AKIKUNI, FUMIO

Examiner

Jurie Yun

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3-5,8 and 9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 3-5,8 and 9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 September 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☒ Certified copies of the priority documents have been received in Application No. 09/785,585.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>9/3/03</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The preliminary amendments filed 9/3/03 and 10/27/03 have been entered.

Drawings

2. Figure 3 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 9, 3, 4, and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Breckinridge (USPN 4,243,323) in view of Nishimura et al. (USPN 6,034,773).
5. With respect to claim 9, Breckinridge discloses an optical interferometer comprising: a light beam (Fig. 1, 14) to be measured; a beam splitter having a cube-like shape (Fig. 2, 90) with an incident surface and a mirror surface inclined to one another (column 5, lines 44-51), the beam splitter for branching the light beam to two optical paths (20 & 22) perpendicular to each other to make a reflected light beam and a transmitted light beam, the beam splitter for combining the reflected light beam and the transmitted light beam to output a wave-combined light beam (20' & 22'); a first reflection unit (24) for reflecting the reflected light beam to return the reflected light

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beam to the beam splitter, in which the reflected light beam (30) returned to the beam splitter is in parallel to the reflected light beam emitted from the beam splitter; a second reflection unit (26) for reflecting the transmitted light beam to return the transmitted light beam to the beam splitter, in which the transmitted light beam (32) returned to the beam splitter is in parallel to the transmitted light beam emitted from the beam splitter; and a light receiver (40) for receiving the wave-combined light beam from the beam splitter, wherein the incident beam is inclined with respect to a normal line of an incident surface of the beam splitter (column 5, lines 44-51).

Breckinridge does not disclose an optical fiber for outputting a light beam to be measured and a lens for converting the light beam from the optical fiber into a parallel light beam. Nishimura et al. disclose this (column 7, lines 1-8). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Breckinridge invention and use an optical fiber for outputting a light beam to be measured and a lens for converting the light beam from the optical fiber into a parallel light beam, as taught by Nishimura et al., to facilitate directing of the light beam. Use of an optical fiber for outputting a light beam is conventional in the art, as stated by the applicant on page 1, lines 6-13, and as exemplified by Nishimura et al.

6. With respect to claim 3, Breckinridge discloses the first and second reflection units (24 and 26) are reflectors.

7. With respect to claim 4, Breckinridge does not disclose the first and second reflection units are corner cubes. Nishimura et al. disclose the use of corner cubes (column 3, line 45). It would have been obvious to one of ordinary skill in the art at the

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time the invention was made to modify the Breckinridge invention and use first and second corner cubes, as taught by Nishimura et al., depending on the design requirements, as reflectors and corner cubes are both reflection units which are functional equivalents.

8. With respect to claim 8, Breckinridge discloses an angle between the incident surface and the mirror surface of the beam splitter is set to forty-five degrees (column 5, lines 25-26). Although this embodiment is shown in Figure 2 using the wedge-shaped elements, there is no teaching that it would not be possible using the cube-shaped element (90). It is merely disclosed that using the cube-shaped element would result in a weightier device.

9. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Breckinridge (USPN 4,243,323) and Nishimura et al. (USPN 6,034,773) as applied to claim 9 above, and further in view of Khoe (USPN 5,325,226).

10. With respect to claim 5, Breckinridge and Nishimura et al. do not disclose the optical fiber is an obliquely polished optical fiber. Khoe discloses the use of an obliquely polished optical fiber (see Abstract). It would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify the Breckinridge and Nishimura et al. inventions and use an obliquely polished optical fiber. As taught by Khoe (see Abstract), this would prevent reflection of light which would result in an errant reading.

Double Patenting

11. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the

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unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

12. Claims 3-5 and 9 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 2, and 9-12 of U.S. Patent No. 6,636,317. Although the conflicting claims are not identical, they are not patentably distinct from each other because claims 1 and 2 of the patent are narrower and thus anticipate claim 9 of the application. Claims 9-12 of the patent do not claim the beam splitter shape (i.e. cube-like shape), but this would be obvious since this is a common shape for a beam splitter, and would be a choice of design.

Response to Arguments

13. The 35 U.S.C. 112, first paragraph rejection of claim 8 has been withdrawn.

14. Applicant's arguments filed 10/27/03 have been fully considered but they are not persuasive. Breckinridge discloses all of the elements of claim 9 except for the use of an optical fiber for outputting a light beam to be measured, and a lens for converting the light beam from the optical fiber into a parallel light beam. Nishimura et al. was used as the secondary reference to teach both of these elements, which are well known in the art. The argument that the "incident beam is inclined with respect to a normal line of the

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incident surface of the beam splitter" is not shown or made obvious relates to Breckinridge alone, and has nothing to do with the combination of Nishimura et al. which was used to teach the optical fiber and lens. Likewise, Khoe was only relied upon for the teaching of an obliquely polished optical fiber.

With regards to the argument that the "incident beam is inclined with respect to a normal line of the incident surface of the beam splitter" is not shown or made obvious, Breckinridge does teach this. Again, referring to Breckinridge at column 5, lines 44-51, "It may be noted that in a conventional Michelson interferometer, the beam splitter must be maintained within perhaps several seconds of arc of a predetermined position, while an interferometer of the type illustrated herein can function with a misalignment of the optical device of about 0.5 degree to 5 degrees, depending on the particular construction." Although Breckinridge does not intend on the incident beam to be inclined with respect to a normal line of the incident surface of the beam splitter, the teaching is included. The Breckinridge device could operate with the optical device aligned at 0.5 degree to 5 degrees. Also, there is no teaching that the embodiment could not be applied to the cube-shaped element. It is only disclosed that use of the cube-shaped element would result in a weightier device. The wedge-shaped elements and the cube-shaped elements are functional equivalents, and the differences are weight, not function. Breckinridge does not specify anywhere in the disclosure that the "misalignment of about 0.5 degree to 5 degrees" could **not** be applied to the cube-shaped embodiment.

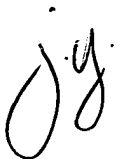
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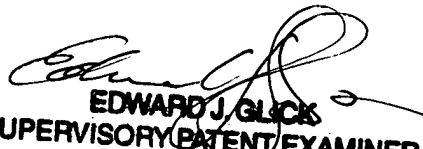
Conclusion

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jurie Yun whose telephone number is 571 272-2497. The examiner can normally be reached on Monday-Friday 8:30-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on 571 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

 Jurie Yun
March 24, 2004


EDWARD J. GLICK
SUPERVISORY PATENT EXAMINER